



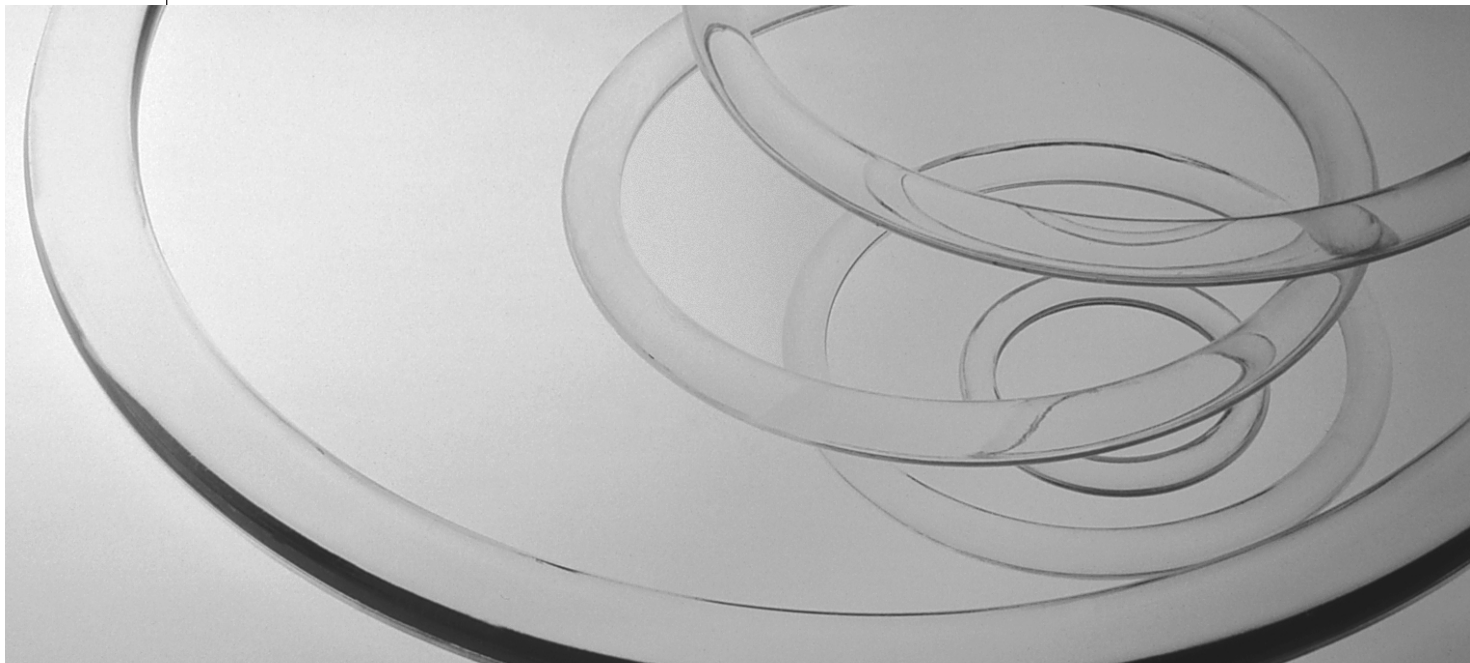
3Com

OfficeConnect®

Ethernet Hub 4, 4C, 8, 8C

(3C16704A, 3C16703A, 3C16700A, 3C16701A)

User Guide



3Com Corporation ■ 5400 Bayfront Plaza ■ Santa Clara, California ■ 95052-8145

Copyright © 2002, 3Com Technologies. All rights reserved.

No part of this documentation may be reproduced in any form or by any means or used to make any derivative work (such as translation, transformation, or adaptation) without written permission from 3Com Technologies.

3Com Technologies reserves the right to revise this documentation and to make changes in content from time to time without obligation on the part of 3Com Technologies to provide notification of such revision or change.

3Com Technologies provides this documentation without warranty, term, or condition of any kind, either implied or expressed, including, but not limited to, the implied warranties, terms or conditions of merchantability, satisfactory quality, and fitness for a particular purpose. 3Com may make improvements or changes in the product(s) and/or the program(s) described in this documentation at any time.

If there is any software on removable media described in this documentation, it is furnished under a license agreement included with the product as a separate document, in the hard copy documentation, or on the removable media in a directory file named LICENSE.TXT or !LICENSE.TXT. If you are unable to locate a copy, please contact 3Com and a copy will be provided to you.

UNITED STATES GOVERNMENT LEGEND

If you are a United States government agency, then this documentation and the software described herein are provided to you subject to the following:

All technical data and computer software are commercial in nature and developed solely at private expense. Software is delivered as "Commercial Computer Software" as defined in DFARS 252.227-7014 (June 1995) or as a "commercial item" as defined in FAR 2.101(a) and as such is provided with only such rights as are provided in 3Com's standard commercial license for the Software. Technical data is provided with limited rights only as provided in DFAR 252.227-7015 (Nov 1995) or FAR 52.227-14 (June 1987), whichever is applicable. You agree not to remove or deface any portion of any legend provided on any licensed program or documentation contained in, or delivered to you in conjunction with, this User Guide.

Unless otherwise indicated, 3Com registered trademarks are registered in the United States and may or may not be registered in other countries.

3Com and OfficeConnect are registered trademarks of 3Com Corporation. The 3Com logo is a trademark of 3Com Corporation

Microsoft, MS-DOS, Windows, and Windows NT are registered trademarks of Microsoft Corporation. Novell and NetWare are registered trademarks of Novell, Inc.

All other company and product names may be trademarks of the respective companies with which they are associated.

Please e-mail any comments about this document to 3Com at: **pddtechpubs_comments@3Com.com**. Please include the document title (OfficeConnect Ethernet Hub 4, Hub 4C, Hub 8, Hub 8C), part number (DUA1670-0AAA06) and, if appropriate, the page number.

Introduction 5

Creating your Network 6

What Else Do I Need? 6

Product Registration 6

Workstation Connections 6

Transceiver Connections 6

Hub Connections 7

10BASE-2 7

10BASE-T 7

Twisted Pair (TP) Cables 7

Stacking the Units Together 8

The Rubber Feet 8

The Stacking Clip 8

Positioning Your Hub 9

Securing Your Hub 9

Using Your Hub 9

The OfficeConnect Ethernet Hub 4 and 4C 10

Ethernet Hub 4 and 4C—Front 10

Ethernet Hub 4 and 4C—Rear 11

Connecting Workstations and Other Equipment to Your Hub 12

Connecting Transceivers to the AUI Port 12

Connecting OfficeConnect Ethernet Hubs Together 12

Connecting Hubs Using 10BASE-2 13

Checking Connections 13

Connecting Hubs Using 10BASE-T 14

Checking Connections 14

Spot Checks 14

Problem Solving for the Hub 4 and 4C 15

The OfficeConnect Ethernet Hub 8 and 8C 17

Ethernet Hub 8 and 8C—Front 17

Ethernet Hub 8 and 8C—Rear 18

Connecting Workstations and Other Equipment to Your Hub 19

Connecting OfficeConnect Ethernet Hubs Together 19

Connecting Hubs Using 10BASE-2 20

Checking Connections 20

Connecting Hubs Using 10BASE-T 21

Checking Connections 21

Spot Checks 21

Problem Solving for the Hub 8 and 8C 22

Networking Terminology 24

Dimensions and Standards 25

Dimensions and Operating Conditions 25

Standards 25

Environmental Statements 26

End Of Life Statement 26

Regulated Materials Statement 26

Environmental Statement about the Documentation 26

Environmental Statement about the Product Packaging 26

Regulatory Notices 27

INTRODUCTION

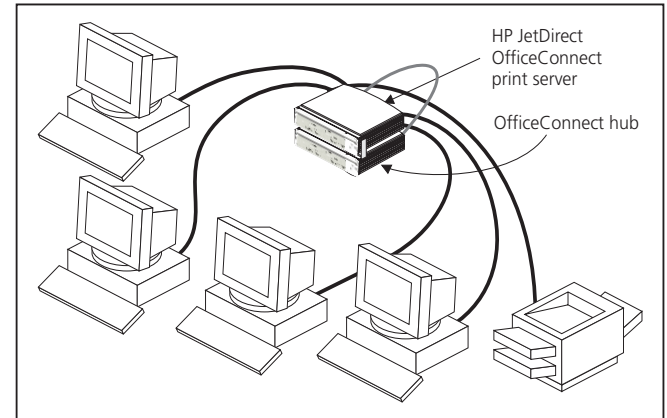
Welcome to the world of networking with 3Com®. In the modern business environment, communication and sharing information is crucial. Computer networks have proved to be one of the fastest modes of communication but, until recently, only large businesses could afford the advantage of networking. The OfficeConnect® product range from 3Com has changed this, bringing networks into the small office.

The OfficeConnect Ethernet Hub 4, OfficeConnect Ethernet Hub 4C, OfficeConnect Ethernet Hub 8 and OfficeConnect Ethernet Hub 8C, are ideal for creating small networks. They are compact and attractively designed for desktop use. These four products are part of the OfficeConnect range which stack neatly together with the OfficeConnect stacking clip.

This user guide describes how to use the OfficeConnect hubs. The hubs have similar features and so this user guide contains general and specific information. When referring to all products, this guide uses the term 'OfficeConnect hub'.

A single OfficeConnect hub allows you to create a small network with up to four or eight workstations, as shown in Figure 1. If you need to connect more workstations, simply use the stacking clip to connect another OfficeConnect hub to form a stack (each hub is a single repeater).

Figure 1 Small Network With OfficeConnect Hub and Optional Print Server



The OfficeConnect hubs have the following ports:

- The Ethernet Hub 4 has four 10BASE-T ports.
- The Ethernet Hub 4C has four 10BASE-T ports, a 10BASE-2 port and an AUI port.
- The Ethernet Hub 8 has eight 10BASE-T ports.
- The Ethernet Hub 8C has eight 10BASE-T ports and one 10BASE-2 port.

CREATING YOUR NETWORK

What Else Do I Need?

Your OfficeConnect hub comes with:

- One power adapter for use with the OfficeConnect hub.
- Four rubber feet.
- A stacking clip.
- One Support and Safety Information Sheet
- One Warranty Flyer

To connect workstations and additional OfficeConnect hubs to your hub, you need extra equipment. The extra equipment listed in the next section is **not** provided with the hub.

Product Registration

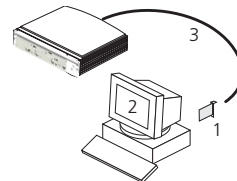
You can now register your OfficeConnect hub on the 3Com web site and receive up-to-date information on your product.

<http://support.3com.com/registration/frontpg.pl>

Workstation Connections

To connect workstations and other equipment to your hub, you need:

- 1 10BASE-T connections for all your equipment. 3Com produce a range of easy to install network adapter cards, which provide your workstations with 10BASE-T connections.



- 2 An operating system (for example, Netware or Windows 95/98) with network support configured, running on your workstations.
- 3 One straight-through TP cable for every workstation.



In order to comply with the 10BASE-T standard, ports designed for workstation connections have been marked with the graphical symbol 'x'. This denotes a crossover in the port's internal wiring, for example 1x, 2x, 3x...

Transceiver Connections

If you want to connect a transceiver to your hub (Hub 4C only), you need:

- An AUI cable. The maximum length you can use is 50m (164ft).
- A 10 Mbps Ethernet transceiver for the chosen media type.

Hub Connections

Depending on what ports your hub has, you can use either 10BASE-T or 10BASE-2 to connect your hubs together:

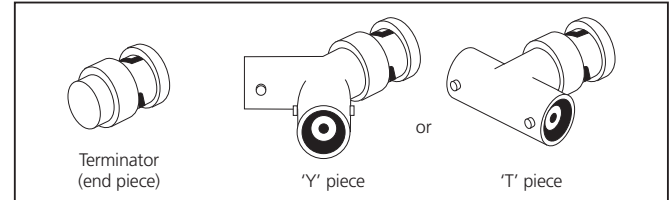
- With 10BASE-2 you can connect up to 30 hubs on a single segment, leaving all of the 10BASE-T ports free.
- With 10BASE-T you can connect up to four hubs in series.

10BASE-2

To connect additional hubs using 10BASE-2 (Hub 4C and 8C only), you need:

- One 10BASE-2 50 Ohm cable for each additional hub. The minimum cable length you can use is 0.5m (1.6ft). The maximum segment length is 185m (607ft).
- One BASE-2 'Y' piece for each hub. You can use 'T' pieces but 'Y' pieces provide optimal clearance of the other ports. (See Figure 2.)
- Two 10BASE-2 50 Ohm terminators (end pieces) (See Figure 2.)

Figure 2 Some of the 10BASE-2 Equipment You May Need



10BASE-T

If you have additional hubs you want to connect using 10BASE-T, you need:

- One straight-through TP cable for each extra hub.

Twisted Pair (TP) Cables

To connect your workstations and hubs, you must use straight-through TP cable with RJ-45 connectors. Cables can be shielded (screened) or unshielded; we recommend that you use shielded. The maximum length you can use is 100m (328ft). A straight-through cable is one where the pins of one connector are connected to the same pins of the other connector.

Stacking the Units Together

The Rubber Feet

The four self-adhesive rubber feet prevent your hub from moving around on your desk. Only stick the feet to the marked areas at each corner of the underside of your hub if you intend to place the unit directly on top of the desk. Do not fix the feet if you are going to use the clip.

The Stacking Clip

The stacking clip allows you to stack your OfficeConnect units together securely.



CAUTION: You can stack up to a maximum of four units. Smaller units must be stacked above larger units.

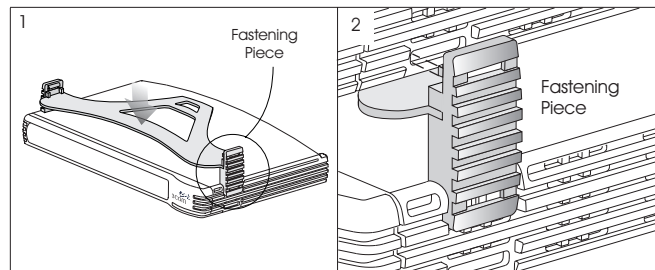
To fit the clip:

- 1 Place your unit on a flat surface.
- 2 Fit the clip across the top of the unit, as shown in Figure 3 (picture 1), ensuring that the longer sections of the fastening pieces are pointing downwards.
- 3 Align the fastening pieces over the slots found on each side of the unit.
- 4 Push the clip down gently to secure it, ensuring the fastening pieces snap into the slots on the unit.

To fit another unit:

- 1 Rest the second unit on top of the clip and align it with the front of the unit below.
- 2 Press down gently on the unit to secure it onto the clip, ensuring the fastening pieces fit into the slots on the unit below, as shown in Figure 3 (picture 2).

Figure 3 Stacking Your Units Together



3 To remove the clip:

- a Remove the top unit together with the clip. If you hook a finger around one of the fastening pieces and then pull it gently from out of the slot, the clip should come away with the upper unit attached to it.
- b Push the clip in the center, so it bends towards the base of the unit, and then separate once the clip is loose.

Positioning Your Hub

When installing your OfficeConnect hub, ensure:

- It is out of direct sunlight and away from sources of heat.
- Cabling is away from power lines, fluorescent lighting fixtures, and sources of electrical noise such as radios, transmitters and broadband amplifiers.
- Water or moisture cannot enter the case of the unit.
- Air flow around the unit and through the vents in the side of the case is not restricted. We recommend you provide a minimum of 25.4mm (1in.) clearance.

Securing Your Hub

There are two slots on the underside of the OfficeConnect hub which can be used for wall mounting. It is recommended that you mount the hubs with the LEDs facing upwards to prevent dust entering the cooling vents.



When wall mounting your hub, ensure that it is within reach of the power outlet.

You need two suitable screws. Ensure that the wall you are going to use is smooth, flat, dry and sturdy. Make two screw holes which are 150mm (5.9in.) apart. Use the template at the back of this guide to mark the position of the holes. Fix the screws into the wall, leaving their heads 3mm (0.12in.) clear of the wall surface.

Remove any connections to the hub and locate it over the screw heads. When in line, gently push the hub on to the wall and move it downwards to secure. When making connections, be careful not to push the hub up and off the wall.



CAUTION: *Only wall mount single hubs, do not wall mount stacked hubs.*

Also available from 3Com, is the OfficeConnect Mounting Unit (part number 3C16765). This allows you to firmly secure a stack of OfficeConnect devices to the desktop or onto a shelf in a rack.

Using Your Hub

You are now ready to create your network, using your OfficeConnect hub.

Read pages 10–16 if you have an:

- OfficeConnect Ethernet Hub 4 or Hub 4C

Read pages 17–23 if you have an:

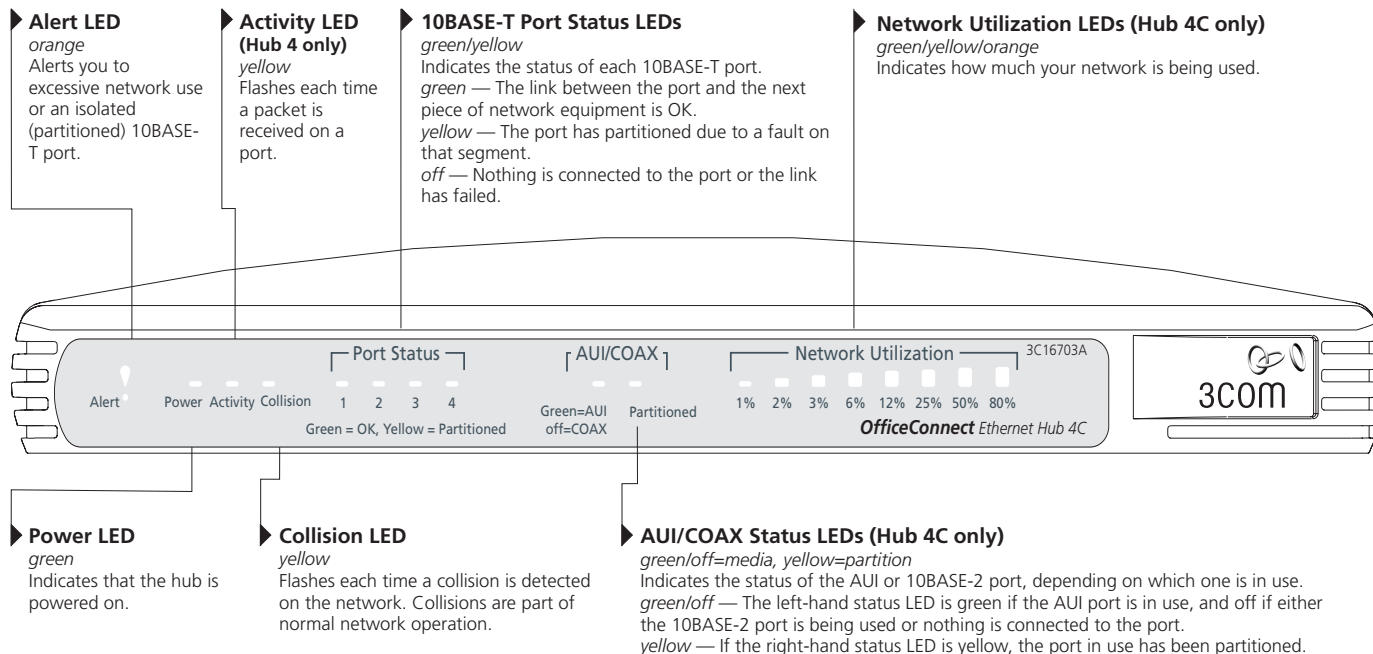
- OfficeConnect Ethernet Hub 8 or 8C

When you have connected your equipment, you are ready to use your network. If you suspect there is a problem, refer to (depending on your hub):

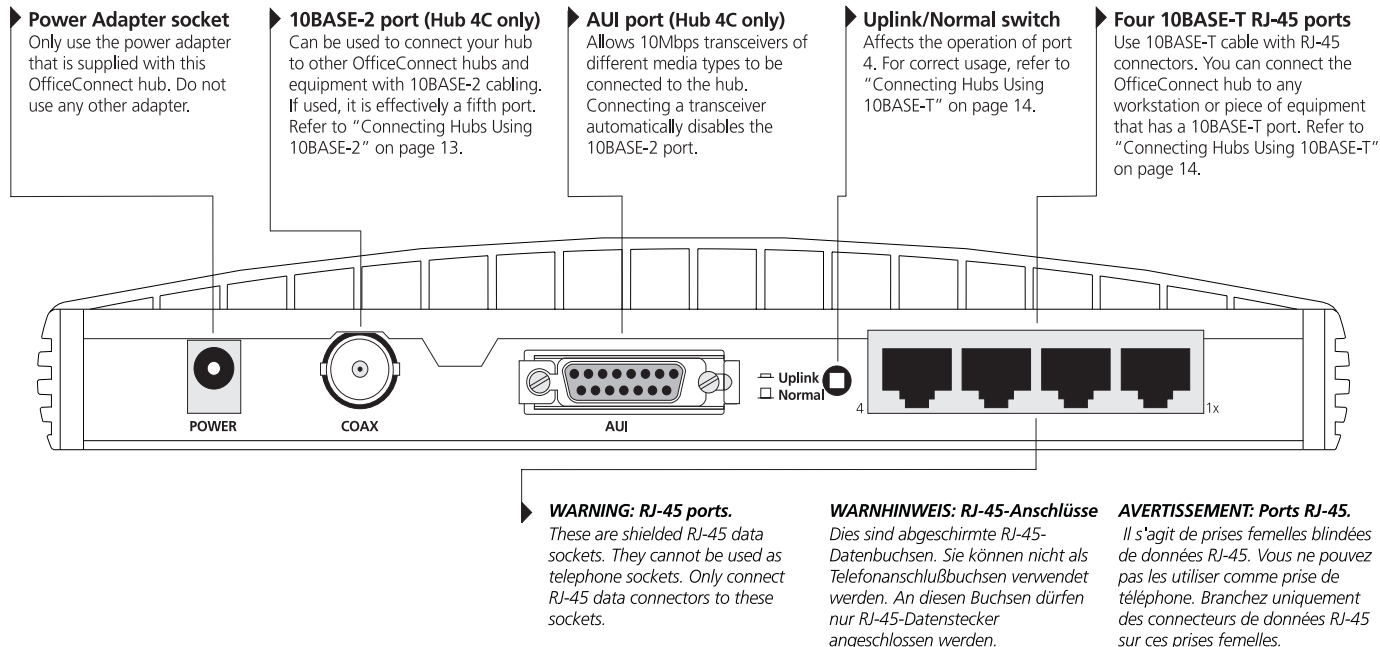
- “Problem Solving for the Hub 4 and 4C” on page 15
- “Problem Solving for the Hub 8 and 8C” on page 22

THE OFFICECONNECT ETHERNET HUB 4 AND 4C

Ethernet Hub 4 and 4C—Front



Ethernet Hub 4 and 4C—Rear



Connecting Workstations and Other Equipment to Your Hub



WARNING: Please read the 'Important Safety Information' sheet before you start.



WARNHINWEIS: Bitte lesen Sie den Abschnitt 'Wichtige Sicherheitsinformationen' sorgfältig durch, bevor Sie das Gerät einschalten.



AVERTISSEMENT: Veuillez lire attentivement la section "Consignes importantes de sécurité" avant de mettre en route.



CAUTION: Do not power the hub off and on quickly. Wait about five seconds between power cycles.

Connect workstations and other equipment to any of the hub's 10BASE-T RJ-45 ports using 10BASE-T cables.

To connect a 10BASE-T cable, simply slot the connector into the relevant RJ-45 port. When the connector is fully in, its latch locks it into place. To disconnect the cable, push the connector's latch in and remove it.



If you are using port 4 to connect to a workstation using a straight-through TP cable, ensure the Uplink/Normal switch is set to Normal (out).

The hub detects all port connections, so you can start using your network immediately. When you need more ports, simply add more OfficeConnect hubs.

Connecting Transceivers to the AUI Port

You can connect a 10Mbps Ethernet transceiver to your hub (Hub 4C only), using a standard AUI cable. Connect one end of the cable to the transceiver and the other end to the AUI port on the hub's rear panel. This automatically disables the 10BASE-2 port, and activates the AUI/COAX LED to show the external transceiver is in use. Engage the slide locks at both ends of the AUI cable.

Connecting OfficeConnect Ethernet Hubs Together

You can increase the number of workstations that can connect to your network by adding more OfficeConnect hubs. You can use either 10BASE-T or 10BASE-2 (Hub 4C only) to do this.



Do not connect the same two hubs together using both 10BASE-T and 10BASE-2. This causes a network loop.



If you do not use the 10BASE-2 port, you do not need to connect a terminator (end piece) to it. If the AUI port is not used and a terminator is not connected to the 10BASE-2 port, the port partitions and the Coax Status LED lights yellow. This is correct operation.

Connecting Hubs Using 10BASE-2

Connect a 10BASE-2 'Y' piece to each of your hubs (Hub 4C only). Connect the 'Y' pieces with 10BASE-2 cable to form a single segment, as shown in Figure 4. Remember to terminate the two free ends of the segment by fitting terminators (end pieces).

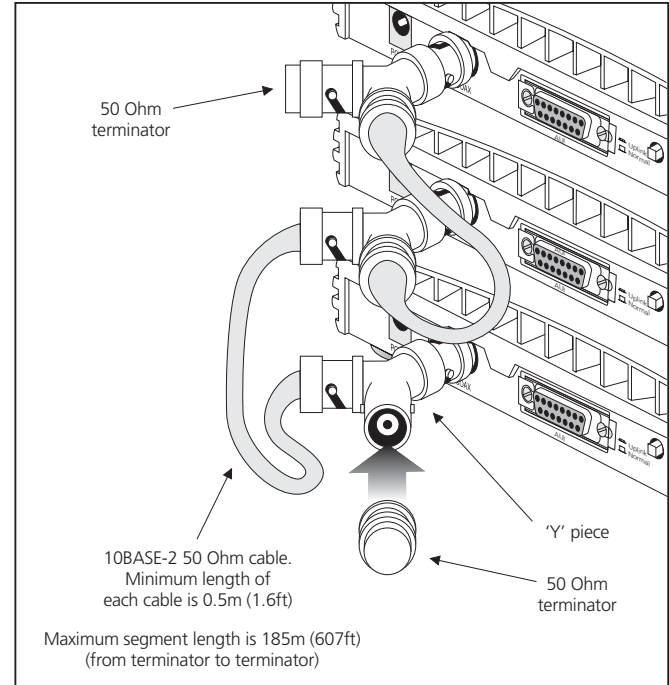
To disconnect a 10BASE-2 cable, twist each connector counter-clockwise to unlock it, and remove it.

-  *If you have connected a 10Mbps Ethernet transceiver to the AUI port, the 10BASE-2 port will be disabled. You can use this transceiver to connect your hubs but we recommend that you connect your hubs using 10BASE-T cable (refer to the next section).*
-  *When using 10BASE-2 cable, it is important that both ends of the segment are properly terminated with 50 Ohm terminators (end pieces).*
-  *Only use 50 Ohm 10BASE-2 cables and a 'Y' piece for each hub. You can use 'T' pieces but 'Y' pieces provide optimum clearance of the other ports.*

Checking Connections

When you have connected your hubs, power them on. The Port Status LEDs for the 10BASE-2 ports you have used should be off. If they are not, check your connections.

Figure 4 Correct Hub Connections Using 10BASE-2



Connecting Hubs Using 10BASE-T

You can connect hubs together with 10BASE-T in a number of ways, but for simplicity we recommend the following method, as shown in Figure 5:

- 1 Starting from the bottom, connect the port 4 of the lower hub to port 3 of the hub immediately above. Repeat this for each hub.
- 2 Set all Uplink/Normal switches to Uplink (in) except for the top hub (the one with port 4 not connected to another hub). This unused port can be connected to a workstation provided that the Uplink/Normal switch is set to Normal (out).

Checking Connections

When you have connected your hubs, power them on. The Port Status LEDs for the 10BASE-T ports you have used should be green. If they are not, check your connections. If the 10BASE-2 port is not used and is not terminated and the AUI port is not being used (if applicable), the LED should be yellow showing that it has partitioned. This is correct operation.

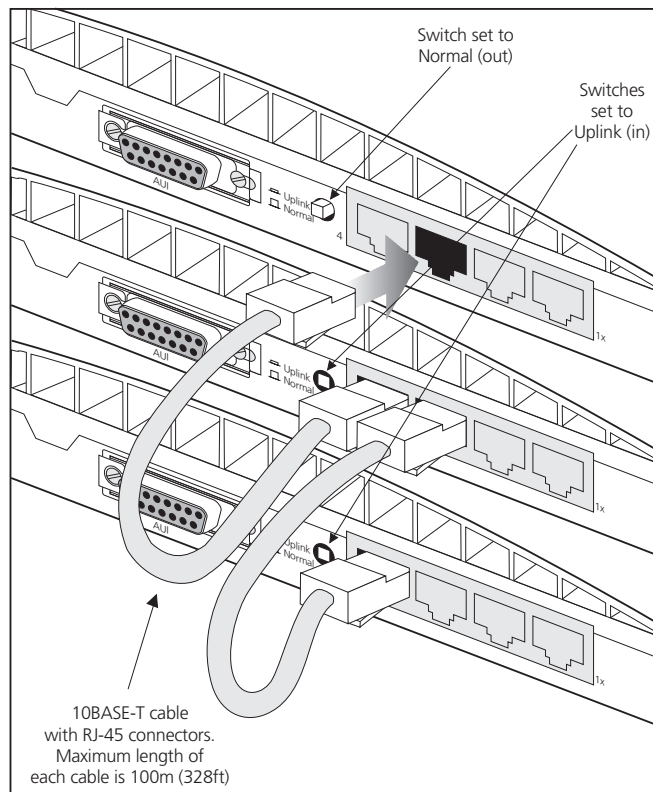
Spot Checks

At frequent intervals, visually check that:

- The Alert LED is not lit — this is the best way to find out if there are problems with your network
- Case vents are not obstructed
- Cabling is secure and not pulled taut

If you suspect there is a problem, refer to “Problem Solving for the Hub 4 and 4C” on page 15.

Figure 5 Correct Hub Connections Using 10BASE-T



PROBLEM SOLVING FOR THE HUB 4 AND 4C

The OfficeConnect hub has been designed to aid you when detecting and solving possible problems with your network. These problems are rarely serious, the cause is usually a disconnected or damaged cable, or incorrect configuration. If this section does not solve your problem, contact your supplier for information on what to do next.

Perform these actions first:

- Ensure all equipment is powered on.
- Power off the hubs, wait about 5 seconds and then power on the hubs.

Check the following symptoms and solutions:

Power LED not lit. Check your power adapter connection. If there is still no power, you may have a faulty power adapter which needs replacing with another OfficeConnect power adapter. **Do not use any other power adapter with the hub.**

Alert LED continuously lit. There is either continual excessive use of your network (over 80%) or, more likely, a 10BASE-T port has partitioned due to a loop in your network (in which case the corresponding Port Status LED will be yellow). Examine your connections and remove the loop. Each piece of equipment needs only one connection to your OfficeConnect hub.

Port Status LED yellow for a 10BASE-T port. It is likely that there is a loop in your network which has caused this port to partition. Examine your connections and remove the loop. Each piece of equipment needs only one connection to your OfficeConnect hub. The LED will change from yellow to green, on receiving a valid packet on the port.

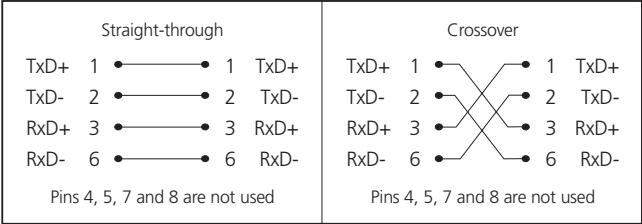
Link between two OfficeConnect hubs not working. Check your hub connections; follow the information given for your hub. With 10BASE-T it is likely an Uplink/Normal switch is incorrectly set. With 10BASE-2 it is likely a terminator (end piece) is not properly fitted; this would cause the Coax Port Status LED to light yellow (partition).

AUI/COAX Port Status LED not lit when external transceiver in use. Check the AUI cable is correctly connected to the hub and to the external transceiver. Ensure both slide locks are engaged.

AUI/COAX Port Status LED yellow when the 10BASE-2 port is not being used. The port has partitioned. This is correct operation.

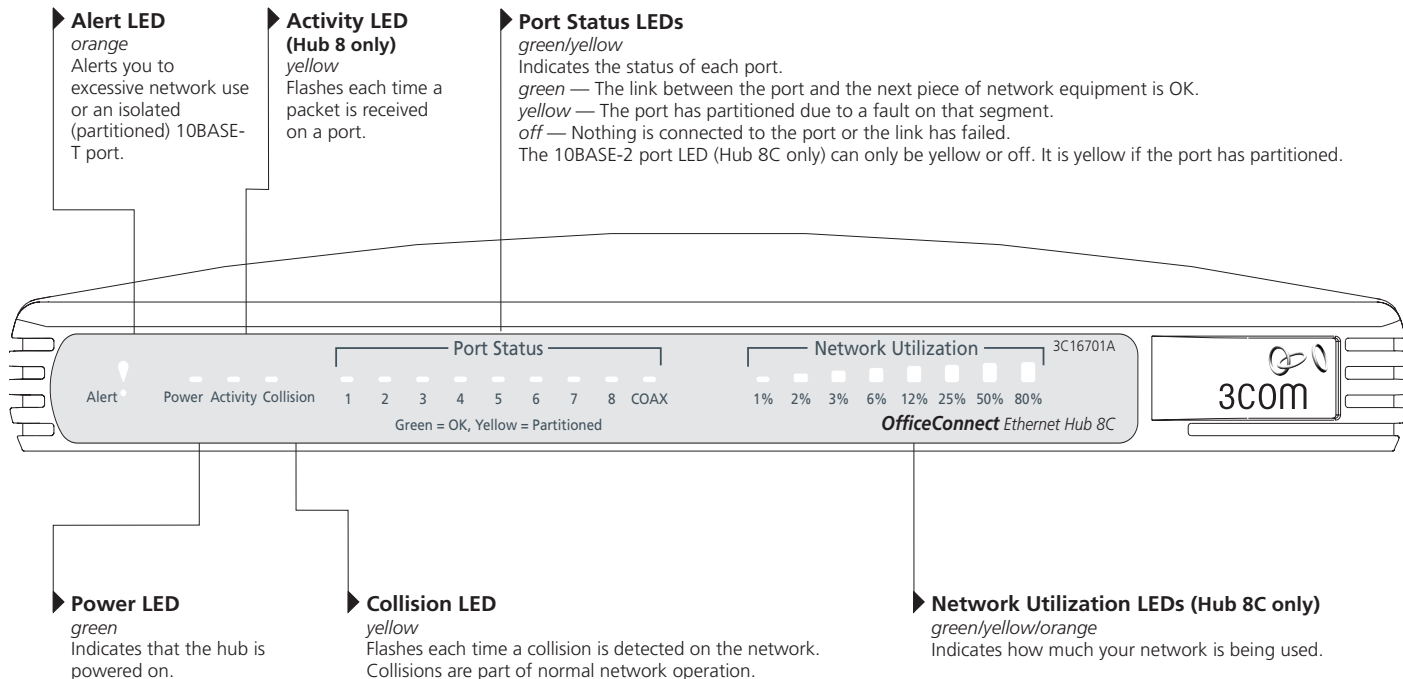
Port Status LED not lit for a 10BASE-T port that has a connection. There is a problem with this connection. Check that you are using a straight-through 10BASE-T cable which is properly connected at both ends, and is not damaged. If the cable is connected to port 4, ensure that the Uplink/Normal switch is set to Normal (out). Also check that the equipment being connected to the hub is powered on and operating correctly. Refer to Figure 6 below to compare the wiring of a straight-through and a crossover cable.

Figure 6 Straight-through Cable/Crossover Cable

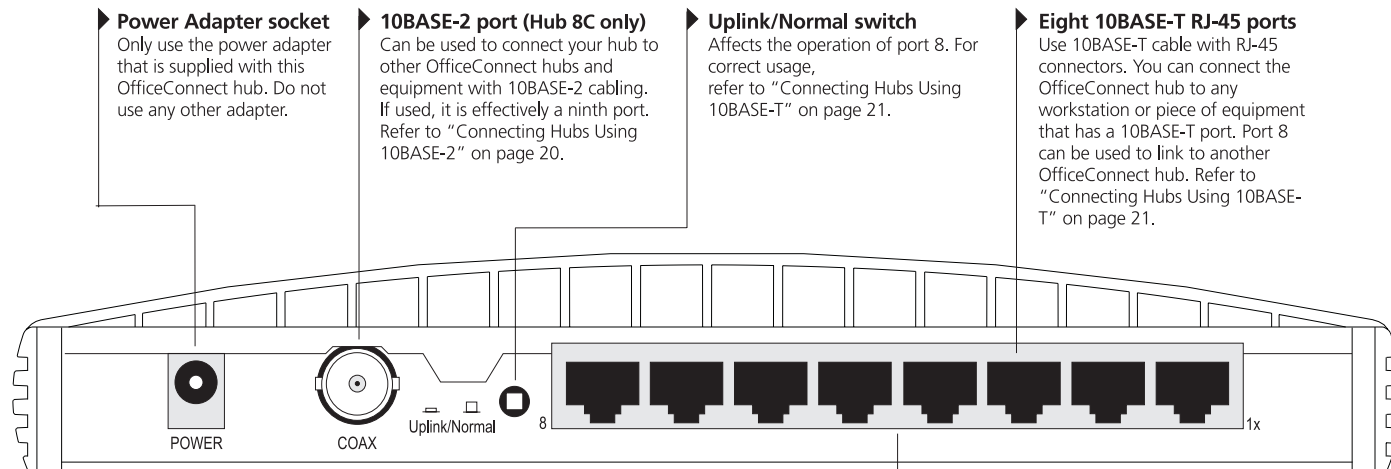


THE OFFICECONNECT ETHERNET HUB 8 AND 8C

Ethernet Hub 8 and 8C—Front



Ethernet Hub 8 and 8C—Rear



► **WARNING: RJ-45 ports.**

These are shielded RJ-45 data sockets. They cannot be used as telephone sockets. Only connect RJ-45 data connectors to these sockets.

WARNHINWEIS: RJ-45-Anschlüsse

Dies sind abgeschirmte RJ-45-Datenbuchsen. Sie können nicht als Telefonanschlußbuchsen verwendet werden. An diesen Buchsen dürfen nur RJ-45-Datenstecker angeschlossen werden.

AVERTISSEMENT: Ports RJ-45.

Il s'agit de prises femelles blindées de données RJ-45. Vous ne pouvez pas les utiliser comme prise de téléphone. Branchez uniquement des connecteurs de données RJ-45 sur ces prises femelles.

Connecting Workstations and Other Equipment to Your Hub



WARNING: Please read the 'Important Safety Information' sheet before you start.



WARNHINWEIS: Bitte lesen Sie den Abschnitt 'Wichtige Sicherheitsinformationen' sorgfältig durch, bevor Sie das Gerät einschalten.



AVERTISSEMENT: Veuillez lire attentivement la section "Consignes importantes de sécurité" avant de mettre en route.



CAUTION: Do not power the hub off and on quickly. Wait about five seconds between power cycles.

Connect workstations and other equipment to any of the hub's 10BASE-T RJ-45 ports using 10BASE-T cables.

To connect a 10BASE-T cable, simply slot the connector into the relevant RJ-45 port. When the connector is fully in, its latch locks it into place. To disconnect the cable, push the connector's latch in and remove it.



If you are using port 8 to connect to a workstation using a straight-through TP cable, ensure the Uplink/Normal switch is set to Normal (out).

The hub detects all port connections, so you can start using your network immediately. When you need more ports, simply add more OfficeConnect hubs.

Connecting OfficeConnect Ethernet Hubs Together

You can increase the number of workstations that can connect to your network by adding more OfficeConnect hubs. You can use either 10BASE-T or 10BASE-2 (Hub 8C only) to do this.



Do not connect the same two hubs together using both 10BASE-T and 10BASE-2. This causes a network loop.



If you do not use the 10BASE-2 port, you do not need to connect a terminator (end piece) to it. If a terminator is not used, the port partitions and the 10BASE-2 Port Status LED lights yellow. This is correct operation.

Connecting Hubs Using 10BASE-2

Connect a 10BASE-2 'Y' piece to each of your hubs (Hub 8C only). Connect the 'Y' pieces with 10BASE-2 cable to form a single segment, as shown in Figure 7. Remember to terminate the two free ends of the segment by fitting terminators (end pieces).

To disconnect a 10BASE-2 cable, twist each connector counter-clockwise to unlock it, and remove it.

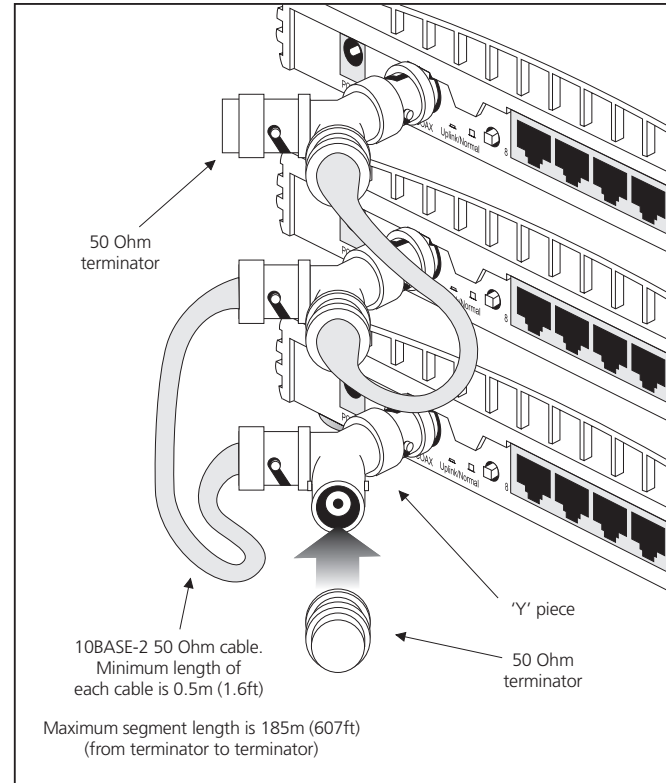
i When using 10BASE-2 cable, it is important that both ends of the segment are properly terminated with 50 Ohm terminators (end pieces).

i Only use 50 Ohm 10BASE-2 cables and a 'Y' piece for each hub. You can use 'T' pieces but 'Y' pieces provide optimum clearance of the other ports.

Checking Connections

When you have connected your hubs, power them on. The Port Status LEDs for the 10BASE-2 ports you have used should be off. If they are not, check your connections.

Figure 7 Correct Hub Connections Using 10BASE-2



Connecting Hubs Using 10BASE-T

You can connect hubs together with 10BASE-T in a number of ways, but for simplicity we recommend the following method, as shown in Figure 8:

- 1 Starting from the bottom, connect the port 8 of the lower hub to port 7 of the hub immediately above. Repeat this for each hub.
- 2 Set all Uplink/Normal switches to Uplink (in) except for the top hub (the one with port 8 not connected to another hub). This unused port can be connected to a workstation provided that the Uplink/Normal switch is set to Normal (out).

Checking Connections

When you have connected your hubs, power them on. The Port Status LEDs for the 10BASE-T ports you have used should be green. If they are not, check your connections. If the 10BASE-2 port is not used and is not terminated, the LED should be yellow showing that it has partitioned. This is correct operation.

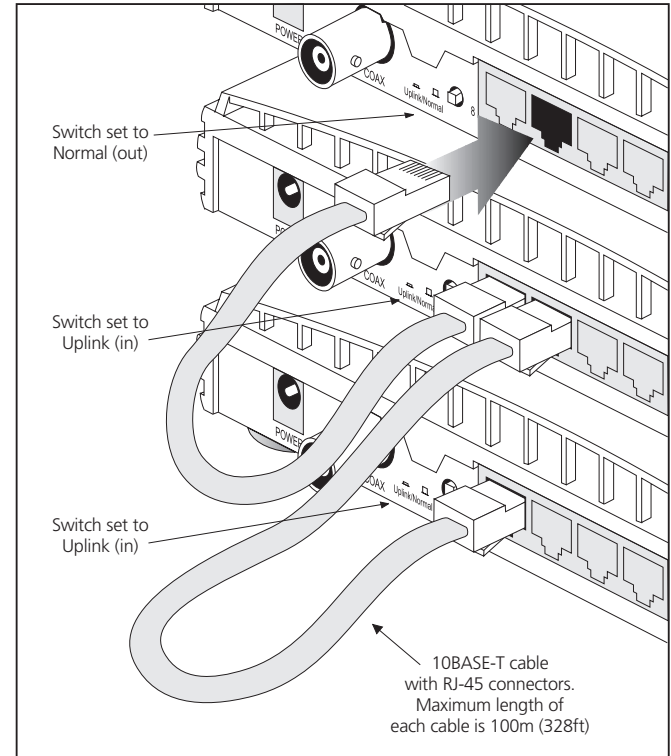
Spot Checks

At frequent intervals, visually check that:

- The Alert LED is not lit — this is the best way to find out if there are problems with your network.
- Case vents are not obstructed.
- Cabling is secure and not pulled taut.

If you suspect there is a problem, refer to “Problem Solving for the Hub 8 and 8C” on page 22.

Figure 8 Correct Hub Connections Using 10BASE-T



PROBLEM SOLVING FOR THE HUB 8 AND 8C

The OfficeConnect hub has been designed to aid you when detecting and solving possible problems with your network. These problems are rarely serious, the cause is usually a disconnected or damaged cable, or incorrect configuration. If this section does not solve your problem, contact your supplier for information on what to do next.

Perform these actions first:

- Ensure all equipment is powered on.
- Power off the hubs, wait about 5 seconds and then power on the hubs.

Check the following symptoms and solutions:

Power LED not lit. Check your power adapter connection. If there is still no power, you may have a faulty power adapter which needs replacing with another OfficeConnect power adapter. **Do not use any other power adapter with the hub.**

Alert LED continuously lit. There is either continual excessive use of your network (over 80%) or, more likely, a 10BASE-T port has partitioned due to a loop in your network (in which case the corresponding Port Status LED will be yellow). Examine your connections and remove the

loop. Each piece of equipment needs only one connection to your OfficeConnect hub.

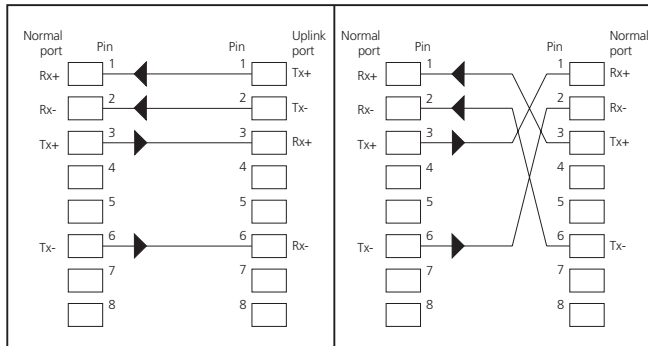
Port Status LED yellow for a 10BASE-T port. It is likely that there is a loop in your network which has caused this port to partition. Examine your connections and remove the loop. Each piece of equipment needs only one connection to your OfficeConnect hub. The LED will change from yellow to green, on receiving a valid packet on the port.

Port Status LED yellow for the 10BASE-2 port when the 10BASE-2 port is not being used. The port has partitioned. This is correct operation.

Link between two OfficeConnect hubs not working. Check your hub connections; follow the information given for your hub. With 10BASE-T it is likely an Uplink/Normal switch is incorrectly set. With 10BASE-2 it is likely a terminator (end piece) is not properly fitted; this would cause the 10BASE-2 Port Status LED to light yellow (partition).

Port Status LED not lit for a 10BASE-T port that has a connection. There is a problem with this connection. Check that you are using a straight-through 10BASE-T cable which is properly connected at both ends, and is not damaged. If the cable is connected to port 8, ensure that the Uplink/Normal switch is set to Normal (out). Also check that the equipment being connected to the hub is powered on and operating correctly. Refer to Figure 9 below to compare the wiring of a straight-through and a crossover cable.

Figure 9 Straight-through Cable/Crossover Cable



NETWORKING TERMINOLOGY

A **Network** is a collection of workstations (for example, IBM-compatible personal computers) and other equipment (for example, printers), connected for the purpose of exchanging information. Networks vary in size, some are within a single room, others span continents.

A **Local Area Network (LAN)** is a network, usually in an office, that spans no more than a single site.

Ethernet is a type of LAN, referring to the technology used to pass information around the network.

10BASE-T is the name given to the Ethernet protocol that runs over **Twisted Pair (TP)** cable at 10Mbps. The OfficeConnect hub uses **RJ-45** type connectors for connecting your TP network.

10BASE-2 is the name given to the Ethernet protocol that runs over 50 Ohm **Coaxial** cable.

A **Network Loop** occurs when two pieces of network equipment are connected by more than one path. Your hub detects this and **partitions** (isolates) one of its ports to break the loop.

A **segment** is the length of Ethernet cable connected to a port, whether this cable is 10BASE-T, 10BASE-2, or other type. When you join equipment together with 10BASE-2 cable, via single speed hubs, the entire cable forms a single segment.

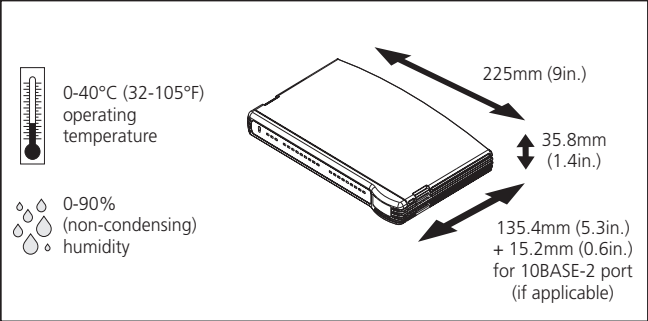
Packets are the units of information your workstations and other equipment send to each other over the network.

Collisions are a part of normal Ethernet operation and occur if two or more devices (pieces of network equipment) attempt to transmit at the same time. A sudden sustained increase in the number of collisions can indicate a problem with a device, particularly if it is not accompanied by a general increase in traffic. On coaxial segments an increase in collisions can also indicate faulty cabling.

An **AUI (Attachment Unit Interface)** port is a standard type of port used to connect 10Mbps Ethernet transceivers to network equipment (Hub 4C only).

DIMENSIONS AND STANDARDS

Dimensions and Operating Conditions



	Power	Weight
OfficeConnect Ethernet Hub 4	2.33 W 7.96 BThU/hr	500g (1.1 lb)
OfficeConnect Ethernet Hub 4C	10.3 W 35.18 BThU/hr	550g (1.2 lb)
OfficeConnect Ethernet Hub 8	3.13 W 10.69 BThU/hr	500g (1.1 lb)
OfficeConnect Ethernet Hub 8C	5.53 W 18.89 BThU/hr	550g (1.2 lb)

Standards

Functional:	ISO 8802/3 IEEE 802.3
Safety:	UL 1950 EN 60950 CSA 22.2 #950 IEC 60950
EMC:	EN 55022 Class B [†] EN 55024 FCC Part 15 Class B ^{†*} ICES-003 Class B VCCI Class B [†] CNS 13438 Class A
Environmental:	EN 60068 (IEC 68) Various parts

[†]Category 3 or 5 screened or unscreened cables can be used to ensure compliance with the Class B requirements.

^{*}Refer to "Regulatory Notices" on page 27 for conditions of operation.

ENVIRONMENTAL STATEMENTS

It is the policy of 3Com Corporation to be environmentally-friendly in all operations. To uphold our policy, we are committed to:

- Establishing environmental performance standards that comply with national legislation and regulations.
- Conserving energy, materials and natural resources in all operations.
- Reducing the waste generated by all operations.
- Ensuring that all waste conforms to recognized environmental standards.
- Maximizing the recyclable and reusable content of all products.
- Ensuring that all products can be recycled, reused and disposed of safely.
- Ensuring that all products are labelled according to recognized environmental standards.
- Improving our environmental record on a continual basis.

End Of Life Statement

3Com processes allow for the recovery, reclamation and safe disposal of all end-of-life electronic components.

Regulated Materials Statement

3Com products do not contain any hazardous or ozone-depleting material.

Environmental Statement about the Documentation

The documentation for this product is printed on paper that comes from sustainable, managed forests; it is fully biodegradable and recyclable, and is completely chlorine-free. The varnish is environmentally-friendly, and the inks are vegetable-based with a low heavy-metal content.

Environmental Statement about the Product Packaging

The packaging for this product is fully recyclable. It has a recycled (post consumer) waste content of at least 40% by weight, and no heavy-metal content.

REGULATORY NOTICES

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules, and the Canadian Department of Communications Equipment Standards entitled, "Digital Apparatus," ICES-003. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.
- Consult the dealer or an experienced radio/television technician for help.

CSA STATEMENT

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CE STATEMENT (EUROPE)

This product complies with the European Low Voltage Directive 73/23/EEC and EMC Directive 89/336/EEC as amended by European Directive 93/68/EEC.

VCCI STATEMENT

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

BSMI STATEMENT

警告使用者：這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

INFORMATION TO THE USER

The user may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

In order to meet FCC emissions limits, this equipment must be used only with cables which comply with IEEE 802.3.

